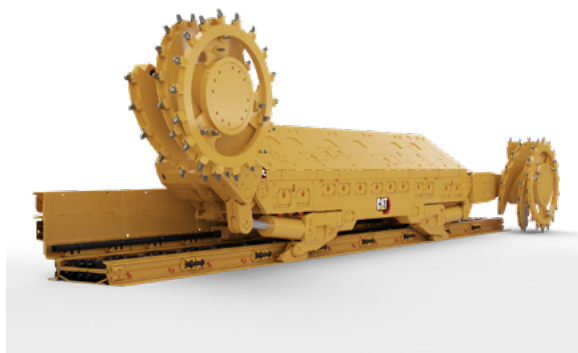


# Cat<sup>®</sup> EL3000

## LONGWALL SHEARER



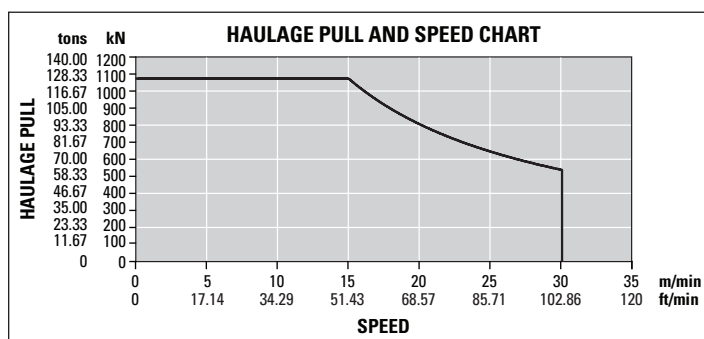
### Specifications

|                                       | Machine @ 50 Hz                        | Machine @ 60 Hz                            |
|---------------------------------------|--|--|
| Seam Range                            | 2.5-5.6 m                              | 98-220 in                                  |
| Typical Machine Length (drum centers) | 15 200 mm                              | 49.9 ft                                    |
| Installed Power                       | Up to 2295 kW                          | Up to 3,680 hp                             |
| Available Cutting Power               | 2 × 620 kW<br>2 × 750 kW<br>2 × 860 kW | 2 × 998 hp<br>2 × 1,207 hp<br>2 × 1,380 hp |
| Cutting Drum Diameter                 |  |  |
| RA750                                 | Up to 2700 mm                          | 106 in                                     |
| RA860                                 | Up to 3200 mm                          | 126 in                                     |
| Cutting Drum Speed                    |  |  |
| RA860                                 | 30.8, 35 and 43 rpm                    | 37, 42 and 51.6 rpm                        |
| RA750                                 | 32.8, 37.4 and 45.2 rpm                | 39.4, 44.9 and 54.3 rpm                    |
| Haulage System                        | AC inverter drive                      | AC inverter drive                          |
| Haulage Power                         | 2 × 150 kW                             | 2 × 240 hp                                 |
| Haulage Speed (maximum)               | 30.11 m/min                            | 98.8 ft/min                                |
| Haulage Pull (maximum)                | 1079 kN                                | 110 tons                                   |
| Coal Sizer                            | 200 kW                                 | 270 hp                                     |
| Pump Motor                            | 75 kW                                  | 100 hp                                     |
| Body Thickness                        | 685 mm                                 | 27 in                                      |
| Machine Weight (approximate)          | 105 tonnes                             | 116 tons                                   |
| Operating Voltage                     | 3,300V                                 | 4,160V                                     |
| Minimum Pan Width                     | 1132 mm                                | 44.6 in                                    |

### Ranging Arm – RA860

- Reconfigurable gear cassettes for adaptation of drum speeds
- Integral monitoring transducers
- Quillshaft transmission protection
- Separate oil compartments for high speed and planetary section (optimal cooling and lubrication)
- Maximum drum diameter of 3200 mm (126 in)
- Available cutter motors – 750 kW and 860 kW at 50 Hz (1207 hp and 1384 hp at 60 Hz)
- Non-handed modular unit
- Robust cowl drive mechanism (optional)
- Vibration monitoring (optional)

### Haulage Unit – HU150



### Ranging Arm – RA750

- Reconfigurable gear cassettes for adaptation of drum speeds
- Integral monitoring transducers
- Quillshaft transmission protection
- Transmission rating of 750 kW at 50 Hz (1,207 hp at 60 Hz)
- Separate oil compartments for high speed and planetary section (optimal cooling and lubrication)
- Maximum drum diameter of 2700 mm ( 106 in)
- Available cutter motors – 620 kW and 750 kW at 50 Hz (998 hp and 1,207 hp at 60 Hz)
- Non-handed modular unit
- Robust cowl drive mechanism (optional)
- Vibration monitoring (optional)

- Haulage motor 150 kW (168 hp)
- Transmission reduction of 137:1
- Absolute encoder for accurate machine position detection (no reset devices at gate ends needed)
- Fully removable, modular gearbox
- Haulage unit accepts hydraulic motor for installation and face recovery
- Oil level and temperature monitoring
- Quillshaft transmission protection
- Machine parking brake (optional)
- Vibration monitoring (optional)

# Cat EL3000 Longwall Shearer

## Downdrive

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- Removable modular top drive wheel assembly (cartridge design allows easy and quick inspections)
- Transmission rating of 150 kW (201 hp)
- Trapping shoe with replaceable wear inserts, safe and easy to replace
- Suitable for all rack type systems
- Reconfigurable downdrive and shoe posts for different pan widths and seam heights

## Powerpack – PP3

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- Single powerpack with less parts to fail and less tasks for quick and easy maintenance
- Pump flow rate of 200 L/min (44 gal/min)
- Maximum system pressure of 210 bar (3046 psi)
- Robust hydraulic reservoir of 300 L (66 gal) capacity
- Integral monitoring transducers (oil level and temperature)
- Optional filter monitoring
- For use with ISO 68 hydraulic oils
- Available with 8-section valve bank
- Reliable high-voltage pump motor rating of 75 kW @ 50 Hz (100 hp @ 60 Hz)
- Dual speed ranging arm control (optional)

## Mainframe – MF3

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- High structural integrity and absorption of all cutting and haulage forces, providing maximum protection for all major units
- Maximum protection of electrical boxes, providing the highest level of flameproof integrity, protects gearboxes against torsion
- Split mainframe available in case of transportation limitations
- Modular design enabling for selective overhauls
- Spray boom retrofittable
- Mainframe adds additional weight to cope with the most challenging cutting conditions

## Electrical Control Box – ECB3

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- This flameproof module contains most of the shearer electrical control and power distribution components
- High current carrying capacity of 500 amps; accommodation of trailing cables up to 240 mm<sup>2</sup> (500 mcm AWG)
- Internal chassis with defined standard designs can be 'bench built,' tested and stored
- LV circuit breakers resettable through FLP cover (reduced downtime)
- Powerful PMC Evo-S control system with state-of-the-art Ethernet communication
- Containing cutter motor contactors, circuit breakers, control transformer, current monitoring, HV fuses, earth leakage and visible disconnect

## Haulage Transformer Box – HTB3

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- Flameproof module containing the main 350 kVA haulage transformer, power supplies, auxiliary transformer, drive system circuit breaker, hydraulic pump motor, and 2 × 200 kW (268 hp) 600V AC inverter drive with integrated regenerative breaking

## Electrical Material

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- Headlights, cameras, methane monitoring, end displays and audible alarms
- Industrial PC (IPC)
- Inertial Navigation System (INS)
- All electrical material is designed and certified to IEC standards and complies with other regional and national standards, such as MSHA, GOST, MA, ATEX and DGMS, as well as Australia's New South Wales and Queensland regulations

## Hydraulic Material

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- All hose assemblies are to ISO 6805 and proof tested according to EN ISO 1402
- The hoses are assembled to Hose Assembly Standard DIN 20066
- Hose selection and routing per industry standard best practices (including MDG41, ISO TS 17165N2 and SAE J1273)
- Cat<sup>®</sup> hoses are aligned with the standards of MSHA, DGMS and MA

## Water Material

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- All Cat hose assemblies are designed according to ISO 6805 and proof tested according to EN ISO 402
- The hoses are assembled to Hose Assembly Standard DIN 20066
- Hose selection and routing per industry standard best practices (including MDG41, ISO TS 17165N2 and SAE J1273)
- Cat hoses are aligned with the standards of MSHA, DGMS and MA MDG 41 compliant hoses are available for Australia
- Stainless steel fittings (optional)
- Onboard water filtration (optional)

## Dust Suppression

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- Wide range of dust suppression solutions available:
  - Body sprays
  - Spray booms
  - Sloughing plate sprays
  - Spray rings (in place of cowls)
  - Shearer clearers

## Coal Sizer (optional)

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- Transmission rating of 200 kW (270 hp)
- Quill shaft protection
- Non-handed unit
- Drum diameter 900 mm (35.43 in)
- Drum speed 200 rpm
- Anti-shock lift mechanism
- Retrofittable during rebuild

## Health Monitoring

- A comprehensive health monitoring system is available, including oil levels and temperatures, flows, pressures and vibration analysis

## Machine Automation and Communication

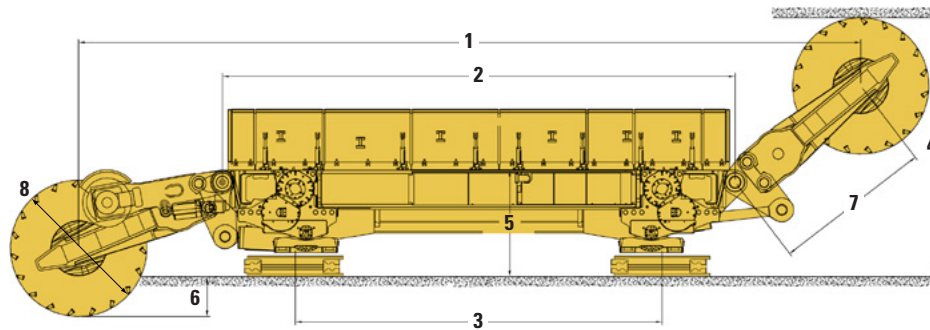
- Distributed, high-performance PMC-S control system for machine control, health monitoring, system protection and predictive maintenance
- Modular design allows individual configuration (from basic monitoring and protection to advanced automation) to meet customer requirements
- Fast Ethernet Broadband communication allows enhanced diagnostics and analysis
- Control system architecture with backup functionality
- Widespread use of intrinsically safe components for improved serviceability and maintenance
- Machine performance algorithm “advanced motor and speed control” for increased machine uptime, coal production and longer service life

- Shearer automation levels available:
  - Standard Machine Control
  - Basic Automation
  - Advanced Automation (including face alignment horizon control)
- Pan Angle Measurement System (PAMS) enabling fully automated gate end cutting sequences without machine operator interactions (optional)
- Horizon Control from PMC-R Controls to allow corrections to floor and roof drum cutting heights (optional)
- Shearer Remote Operation to allow machine control from a safe remote location outside the face (optional)

## Remote Control

- Lightweight handheld device
- Color graphic display
- Tilt, drop and impact detection

## Typical Machine Configurations

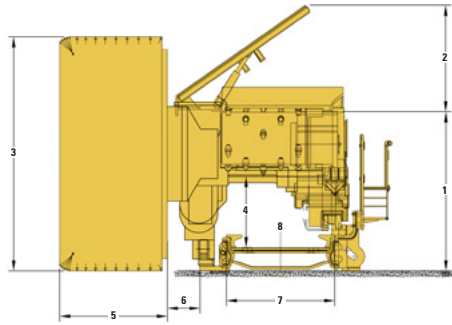


## Dimensions (All dimensions are approximate.)

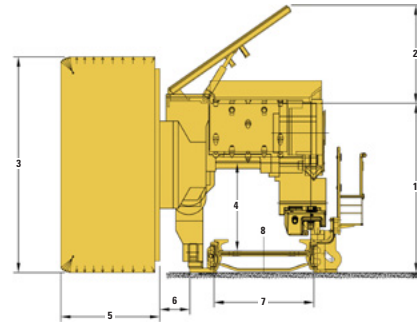
|   | Low       |        | Medium    |        | High      |        | Super High |        |
|---|-----------|--------|-----------|--------|-----------|--------|------------|--------|
| 1 Distance between Drums with Arms Horizontal | 15 200 mm | 598 in | 15 200 mm | 598 in | 15 200 mm | 598 in | 15 200 mm  | 598 in |
| 2 Distance between Ranging Arm Hinge Points   | 9400 mm   | 370 in | 9400 mm   | 370 in | 9400 mm   | 370 in | 9400 mm    | 370 in |
| 3 Distance between Trapping Shoe Centers      | 6724 mm   | 265 in | 6332 mm   | 249 in | 6724 mm   | 265 in | 6724 mm    | 265 in |
| 4 Maximum Cutting Height for Seam             | 4400 mm   | 173 in | 4660 mm   | 183 in | 4820 mm   | 190 in | 5600 mm    | 220 in |
| 5 Height to Top of Machine Main Body          | 1690 mm   | 67 in  | 1950 mm   | 77 in  | 2110 mm   | 83 in  | 2250 mm    | 89 in  |
| 6 Shearer Drum Undercut of Floor              | 640 mm    | 25 in  | 380 mm    | 15 in  | 220 mm    | 9 in   | 550 mm     | 22 in  |
| 7 Ranging Arm Length (Hinge to Drum)          | 2900 mm   | 114 in | 2900 mm   | 114 in | 2900 mm   | 114 in | 2900 mm    | 114 in |
| 8 Diameter of Shearer Cutting Drum            | 2200 mm   | 87 in  | 2500 mm   | 98 in  | 2700 mm   | 106 in | 3200 mm    | 126 in |

NOTE: All illustrations and drawings are exemplary. Binding drawings are created for specific offers.

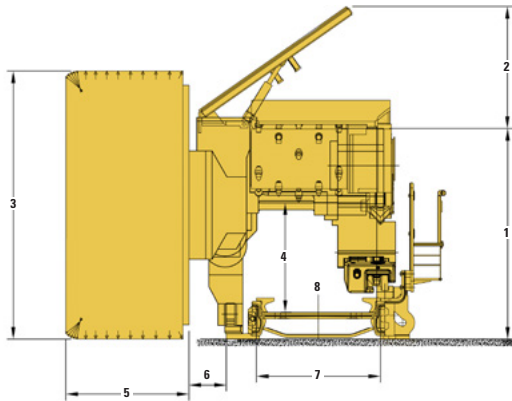
# Cat EL3000 Longwall Shearer



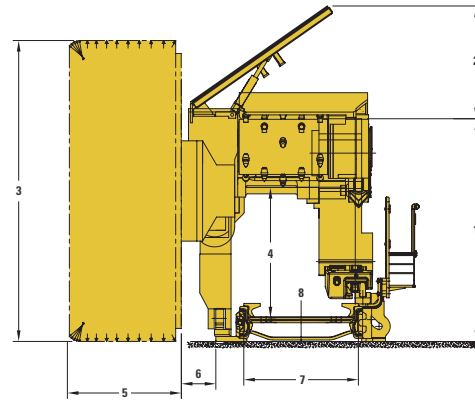
**Low**



**High**



**Medium**



**Super High**

## Dimensions

|  | Low                 |                     | Medium              |                     | High                |                      | Super High          |                      |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------|----------------------|
| <b>1</b> Machine Height over Main Body       | 1690 mm             | 67 in               | 1950 mm             | 77 in               | 2110 mm             | 83 in                | 2250 mm             | 89 in                |
| <b>2</b> Top Guard Height over Main Body     | 1124 mm             | 44 in               | 1124 mm             | 44 in               | 1124 mm             | 44 in                | 1124 mm             | 44 in                |
| <b>3</b> Ranging Arm Cutting Drum Diameter   | 2200 mm             | 87 in               | 2500 mm             | 98 in               | 2700 mm             | 106 in               | 3200 mm             | 126 in               |
| <b>4</b> Vertical Tunnel Clearance           | 800 mm              | 31 in               | 1060 mm             | 42 in               | 1220 mm             | 48 in                | 1340 mm             | 53 in                |
| <b>5</b> Cutting Drum Overall Width          | 1100 mm             | 43 in               | 1100 mm             | 43 in               | 1100 mm             | 43 in                | 1100 mm             | 43 in                |
| <b>6</b> Clearance from Drum to AFC Toeplate | 344 mm              | 14 in               | 344 mm              | 14 in               | 344 mm              | 14 in                | 344 mm              | 14 in                |
| <b>7</b> AFC Pan Width                       | 1142 mm             | 45 in               | 1142 mm             | 45 in               | 1142 mm             | 45 in                | 1142 mm             | 45 in                |
| <b>8</b> Cross Sectional Area (CSA)          | 0.57 m <sup>2</sup> | 6.1 ft <sup>2</sup> | 0.80 m <sup>2</sup> | 8.6 ft <sup>2</sup> | 0.95 m <sup>2</sup> | 10.2 ft <sup>2</sup> | 1.06 m <sup>2</sup> | 11.4 ft <sup>2</sup> |

NOTE: All illustrations and drawings are exemplary. Binding drawings are created for specific offers.

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